WHAT IS CLAIMED IS:

1. An electrosurgical generator capable of varying both the output crest factor and output power based on the changing impedance of tissue during electrosurgery, said electrosurgical generator comprising:

a processing unit for receiving at least one signal indicative of an output voltage and an output current, said processing unit executing a set of programmable instructions for determining the tissue impedance using the output voltage and output current and transmitting at least one waveform adjustment signal; and

a waveform generator for receiving the at least one waveform adjustment signal for adjusting the output crest factor and output power based on the determined tissue impedance.

2. An electrosurgical generator as in Claim 1, wherein said processing unit further determines a corresponding output crest factor value and output power value for the determined tissue impedance by accessing at least one data structure.

3. An electrosurgical generator as in Claim 2, wherein said at least one waveform adjustment signal includes data for setting the output crest factor and output power to the values provided by the at least one data structure.

4. An electrosurgical generator as in Claim 2, wherein said at least one data structure includes at least one look-up table.

5. An electrosurgical generator as in Claim 1, wherein said at least one waveform adjustment signal includes data to alter the duty cycle of a waveform generated by the waveform generator in accordance with the following formula: $CF=[(1-D)/D]^{1/2}$, where D is the duty cycle of the generated waveform.

6. An electrosurgical generator as in Claim 1, wherein said at least one waveform adjustment signal includes data to alter at least one of the positive peak and the RMS value of a waveform generated by the waveform generator in accordance with the following formula: $CF=V_{PEAK}/V_{RMS}$, where V_{PEAK} is the positive peak of the generated waveform and V_{RMS} is the RMS value of the generated waveform.

7. An electrosurgical generator as in Claim 1, wherein said at least one waveform adjustment signal includes data to alter at least one of the duty cycle, the positive peak value, and the RMS value of a waveform generated by the waveform generator.

8. An electrosurgical generator as in Claim 1, wherein said processing unit executes the set of programmable instructions automatically, in real time and continuously during electrosurgical activation.

9. An electrosurgical generator as in Claim 1, further comprising at least one control for manually selecting a value for the output crest factor.

10. A method for varying both the output crest factor and output power of an electrosurgical generator based on the changing impedance of tissue during electrosurgery, said method comprising the steps of:

determining tissue impedance using an output voltage and an output current of the electrosurgical generator; and

adjusting the output crest factor and output power of said electrosurgical generator based on the determined tissue impedance.

11. A method as in Claim 10, wherein said adjusting step comprises the step of determining a corresponding output crest factor value and output power value for the determined tissue impedance by accessing at least one data structure.

12. A method as in Claim 11, wherein said adjusting step comprises the step of setting the output crest factor and output power to the values provided by the at least one data structure.

13. A method as in Claim 11, wherein said at least one data structure includes at least one look-up table.

14. A method as in Claim 10, wherein said adjusting step comprises the step of sending a signal to a waveform generator of said electrosurgical generator to alter the duty cycle of a waveform generated by the waveform generator in accordance with the following formula: $CF=[(1-D)/D]^{1/2}$, where D is the duty cycle of the generated waveform.

15. A method as in Claim 10, wherein said adjusting step comprises the step of sending a signal to a waveform generator of said electrosurgical generator to alter at least one of the positive peak and the RMS value of a waveform generated by the waveform generator in accordance with the following formula: $CF=V_{PEAK}/V_{RMS}$, where V_{PEAK} is the positive peak of the generated waveform and V_{RMS} is the RMS value of the generated waveform.

16. A method as in Claim 10, wherein said adjusting step comprises the step of sending at least one signal to a waveform generator of said electrosurgical generator to alter at least one of the duty cycle, the positive peak value, and the RMS value of a waveform generated by the waveform generator.

17. A method as in Claim 10, wherein said adjusting comprises the step of selectively adjusting the output crest factor by adjusting at least one particular parameter of a generated waveform to provide a particular surgical result.

18. A method as in Claim 10, further comprising the step of manually selecting a value for the output crest factor and a value for the output power.

19. A method as in Claim 10, wherein said method is performed automatically, in real time and continuously for the duration of the electrosurgery.

20. An electrosurgical generator capable of varying both the output crest factor and output power based on the changing impedance of tissue during electrosurgery, said electrosurgical generator comprising:

means for determining tissue impedance using an output voltage and output current of the electrosurgical generator; and

means for adjusting the output crest factor and output power of said electrosurgical generator based on the determined tissue impedance.

21. A power source for generating an output voltage and an output current for an electrosurgical generator system, said electrosurgical system is capable of varying both the output crest factor and output power based on the changing impedance of tissue during electrosurgery, and said electrosurgical system including a processing unit for receiving at least one signal indicative of the output voltage and the output current, said processing unit executing a set of programmable instructions for determining the tissue impedance using the output voltage and output current and transmitting at least one waveform adjustment signal; said electrosurgical system further including a waveform generator for receiving the at least one waveform adjustment signal for adjusting the output crest factor and output power based on the determined tissue impedance.